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Integrating external evidence of intervention effectiveness with both practice and the parent perspective: development of 'What Works' for speech, language, and communication needs (SLCN)

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ABBREVIATION

SLCN Speech language and communication needs

~~Abstract~~ABSTRACT

AIM The aim of the study was to develop an ecologically valid synthesis of the evidence underpinning interventions for children with speech language and communication needs (SLCN), integrating a range of different data sources.

METHOD Three sources of information were integrated: the Cochrane Review of interventions for children with primary speech and language delays/disorder; current practice from an online survey of 534 speech and language therapists and other professionals working with children with SLCN; and parent reports of preferred outcomes. Evidence was ranked as strong, moderate, or indicative.

RESULTS Of the 58 interventions identified, three (5%) were found to have a strong level of evidence, 32 (56%) had moderate evidence, and 23 (39%) had indicative evidence. Five were universal interventions, the remainder targeted and universal. The integrated findings were then turned into an online interactive database, which is moderated and updated at regular intervals.

INTERPRETATION There are a number of interventions that have a moderate or strong level of evidence underpinning them but they tend not to be those used by practitioners who often favour well-established familiar programmes even if they have only indicative evidence. There is a degree of complementarity between professional and parent views about outcomes, albeit with different emphases.

What this paper adds

- the process of development of an innovative database integrating external evidence practitioner experience and parental perspective.
- Transformation of the database into a searchable, interactive web resource for the use of practitioners and policy makers.

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The implementation of evidence-based practice is rarely straightforward in any branch of medicine,[1] in part because it involves 'integrating individual clinical expertise' with the 'best available external clinical evidence from systematic research',[2] to which has been added the 'best available evidence concerning the preferences of a fully informed patient'.[3] The pattern is common enough, trials are summarised, meta-analyses completed, and recommendations made, where appropriate, for clinical guidelines, as illustrated for the management of cerebral palsy.[4] All too often such reviews are hedged about with caveats, for example about sample size and heterogeneity, and it can be difficult to make any meaningful recommendations, leaving a substantial gap between review, guidelines, and what practitioners actually do.[5]

Systematic reviews are part of the solution but they need to be seen within the context of practitioner expertise.[6,7] We know less about how to integrate the views of practitioners and parents and how effective we are in eliciting evidence informed patient choice. Although there has been some progress in the field of shared decision making,[8] the emphasis is commonly on the technical elements of systematic reviewing and the other elements often appear to be the poor relations in the process.

One group of children who provide an interesting case in point is those with speech, language, and communication needs (SLCN). A number of systematic reviews have been completed,[9-12] but barriers to implementation are legion[13] and practitioners tend to use them to reinforce existing practice rather than question it. In part this reflects the fact that such interventions are inherently complex in their delivery, organisational levels, and the degree of flexibility of intervention permitted.[14] Increasingly, Sackett's original definition is being revisited and reinterpreted to reflect a growing awareness of the need to mesh research with current practice and service user perception.[15]

The context

After the Bercow Report,[16] England's Department of Education commissioned the Better Communication Research Programme 'to enhance the evidence base and inform delivery of better outcomes for children and young people' (p. 50), and to address the interface among research, practice, and policy. The programme had a number of strands, of which one was to develop an online resource of the best researched and most useful interventions for children with SLCN.[17]

In doing so the study sought to address three research questions: To what extent is the best available intervention research evidence reflected in practice? To what extent is current practice

underpinned by robust evidence for effectiveness? To what extent do practitioner and parent agree on outcomes?

PROCEDURE

The aim of the study was to develop an ecologically valid synthesis of the evidence underpinning interventions for children with SLCN, integrating a range of different data sources.

The synthesis drew on three different sources of evidence:

(1) 1 Cochrane Collaboration Systematic review

The Cochrane Collaboration Systematic review of the literature *Speech and language therapy interventions for children with primary speech and language delay or disorder* was originally published in 2003,[9] then updated in 2011. This included only randomised controlled trials of intervention for children or adolescents with primary speech and language delay/disorder. Because interventions in this review are often underspecified, the meta-analyses were grouped on outcomes, giving, it is argued, a clear picture of the aims of the intervention. Although intervention studies were included in the systematic review irrespective of publication date, only those that had been published since 1980 were included at this stage of development of the database. Similarly we excluded studies where the intervention had been carried out in a different language and those where the intervention was too generic (speech and language therapy, phonological therapy) to be reasonably replicable.

(2) Practitioner feedback on current practice

Practitioner feedback on current practice was obtained from interviews and an online survey.[18] Interviews were conducted with 46 service managers from 10 Educational Psychology Services and 14 NHS Speech and Language Therapy Services; 10 of the Speech and Language Therapy Services were in the same locality as the Educational Psychology Services, an additional two educational psychologists and 11 speech and language therapists SLTs plus nine other managers of specialist services.[19] Interviewees were asked to list the interventions that their services used with children with SLCN. This informed the development of an online national survey (provided in Appendix S1). The focus of the questionnaire was on interventions and outcomes. As part of this process, practitioners were asked to identify all the programmes they used, published or locally developed, and the research team then checked the intervention against publicly available data sources. Further details of the procedure for the questionnaire and a detailed analysis of the results are provided in reference.[18]

(3) Parental feedback on current practice

Interviews and focus groups were carried out with the parents of children who had been receiving services because they had SLCN. Rather than focusing on the interventions that their children had received, we asked parents to identify the achievements of their child. These positive achievements then became the focus of discussion about outcomes that they valued. Thirty-seven parents of children (aged between 4 and 18) with a wide range of SLCN were recruited from six different sites across England. These were Cambridge, Kidderminster, Huddersfield, Leeds, Plymouth, and Bristol. The Huddersfield and Leeds interviews were organised through Afasic, the national organisation for children with SLCN and their families. The Bristol and Plymouth interviews were organised through local Parent Partnership organisations via parent support agencies. The Cambridge and Kidderminster services were organised through local services for children with SLCN. Focus groups were chosen as the primary method of data collection for this stage as they provide an opportunity for people to give a narrative of their own experience and to allow discussion of views from a range of perspectives. Focus groups were facilitated by two research staff and the interviews transcribed and analysed thematically. Further details of the interviews and the way that they were executed are provided in reference.[20] Recordings of the sessions were transcribed initially by secretarial staff experienced in transcribing focus groups. The transcripts were reviewed by one of the facilitators who then completed the thematic analysis. They were then reviewed independently by a second researcher (Roulstone) and discrepancies regarding the emergent themes were discussed and resolved.

Integrating the evidence

The most recent version of the Cochrane Review was scanned for interventions that met the following criteria: (1) in English; (2) with published manuals or sufficient information available to carry out the intervention (training materials, courses, etc.)

The practitioner questionnaire led to the identification of a number of interventions commonly used in the UK. The literature underpinning was then identified using a variety of sources (library searches, internet databases, programme websites, etc). Those with insufficient data were excluded at this stage. The remaining interventions were then summarised using a proforma and combined with the interventions that practitioners indicated they commonly used. The proforma included information about outcomes and these were compared with those identified as of importance by parents. Once identified and summarised, the interventions were then included in a substantive report (*What works for SLCN*) from the Better Communication Research Programme (BCRP[21]) and this was then transformed into an interactive website of the same name by The Communication Trust. This was launched in April 2013 and a series of

steps were then taken to disseminate information about the website (lectures, seminars, training sessions, etc.). The Department for Education (DfE) then agreed to fund the monitoring, refinement, and updating of the website. The website included a blog function for feedback from practitioners who had to register to use the website, and The Communication Trust surveyed practitioners who had used the website with a view of providing a feedback loop of improvement adapting the website to meet the needs of the needs of the people most likely to use it.

RESULTS

The systematic review

By the 2011 iteration of the Cochrane Review, 68 studies were included involving 171intervention arms including 4352 children (aged 1-16 years) , the second-largest review in the Cochrane's Psychosocial, Developmental and Behaviour problems group. As indicated above, a number of these interventions were too generic (i.e. 'speech and language therapy'), or not sufficiently well articulated, and for these reasons only those interventions that could reasonably be replicated were included at this stage. Thus, 18 papers were excluded because the interventions described were too poorly specified, 10 because they had been published before 1980, and two because, although published in English, they had been carried out in a language other than English. This process led to the inclusion of 38 papers reporting on 18 interventions. Evidence in support of a given intervention was considered Strong, if it included at least one systematic review, Moderate with at least a single randomised controlled study, or Indicative with published data, before and after studies, experimental single subject designs, etc.

Review of practice

A total of 158 different interventions were identified in the interviews, including published programmes, activities, and principles or approaches. The aim of the survey was to capture each practitioner's most frequent practice. Respondents were presented with a list of the interventions generated in the initial interviews and asked which of these they used with the most typical child on their caseload and whether they used them rarely, sometimes, or frequently. The survey generated, after exclusions, 536 responses.[19] The same criteria as for the studies from the systematic reviews were used for judging the evidence level of interventions used in common practice, although quasi-experimental studies were included in the moderate level of evidence and a third indicative level was included for interventions with good face validity but limited research evidence, that is experimental single subject designs, case studies, or 'before and after' studies. Of the 158 interventions, 125 were published programmes and approaches with no supporting evidence, or they were locally generated programmes again without a published evidence

base. The remaining 33 were included in the database; this initially included the 10 most used intervention programmes on the basis of their face validity in practice. The two sources led to the identification of 58 interventions, of which seven were common to the review and the practitioner survey. In Figure 1 we combine the systematic review and practitioner data sources.

Outcomes for speech and language interventions

Traditionally Cochrane reviews have tended to group interventions by the nature of the intervention, the drug, or the programme, as examples. An alternative is to focus on the study outcome and combining studies that have adopted a similar outcome. This distinction can be characterised by the difference in combining trials using the Hanen Early Language Parent Programme, which used a variety of parent/child outcomes, or to group studies that have focused on vocabulary irrespective of whether the interventions are identical or indeed programmatic or manualised at all. Of course the approaches are not mutually exclusive. The key outcomes identified by practitioner respondents in the present, as might be expected, focused on the improvement in children's performance in communication, speech, language, and fluency. They also stipulated social and interaction skills and aspects of psychosocial functioning such as confidence and behaviour. Some outcomes are relevant to only one age (preverbal skills), others are added in as the child ages (inferencing skills, narrative, word finding, etc.), and some appear to fade gradually, such as working on parent-child interaction. The survey also found that for most types of special educational needs, the most common outcome was improved communication (as opposed to language, fluency, speech, or social communication).

The parental perspective on outcomes

Parental perception of outcomes suggested a different emphasis. Skills such as speech, language, literacy, and numeracy were linked to their functional usefulness as tools towards future life goals, particularly enabling children to achieve independence. This is similar to what Sloper et al.[22] called the 'fundamental outcomes' physical and emotional wellbeing, being able to communicate and staying safe. Interestingly, although a third of practitioners identified the importance of what might be termed 'higher level outcomes' such as independence, these rarely translated into the types of outcomes measured. Indeed two overarching themes emerged: 'to be included' and 'to achieve independence', within which were a number of related subthemes.[19] For example, the theme of being included encompassed concepts of friendships and peers. Parents wanted their children to make real and lasting friendships. Further, they were concerned that their children should not be isolated and left out of peer activity and conversation at school. In terms of achieving independence, parents saw the achievement of skills in literacy and numeracy to be important in as far as they enable their child to function independently. Similarly, they

recognised the value of academic qualifications to their child's future employability and financial independence. Parents were also concerned about their children's safety and talked about the risk of 'letting go', where the outcome of independence is balanced against their child's vulnerability and need of advocacy and support.

Integration of external evidence and practice in the 'What Works' for SLCN database

Data from the review and practitioner survey elements of the study then formed the basis of the 'What Works' database,[21] which was subsequently developed as an online version and hosted by The Communication Trust (http://www.thecommunicationtrust.org.uk/whatworks). This is a searchable and interactive database designed for use by practitioners – speech and language therapists, educational psychologists, specialist teachers, and potentially commissioners of services. On login the interested party is presented with six choices: target group (Speech, Language, Communication, Complex needs); age range, (Preschool, Primary, Secondary); focus of intervention (Universal, Targeted, Specialist); who it is delivered by (Specialist, Teacher, Assistant, Other); and format (Manual, Approach, Technique).. Selecting these in any combination brings up the interventions meeting these criteria. It is also possible to search alphabetically. Clicking on a specific intervention will bring up a two-page summary of the description of aims and objectives, the method of delivery, the underpinning evidence, its use in practice, and the literature supporting the intervention in question. As part of this process the interested practitioner is then asked for feedback on the process. Because registration is a requirement for access to the database, it is possible to say that over 7500 practitioners in the UK and internationally have registered to use the website in its first 18 months of operation. Feedback on the site has been received from a number of different sources leading to a range of improvements. For example we are proposing to introduce a blog element to the website to allow practitioners to comment on the interventions as they try them. As part of the process of introducing this website, a moderating group has been set up comprising members of The Communication Trust, the Royal College of Speech and Language Therapists, and the key academics, which meets three times a year to review responses to the website, to respond to questions ,and to consider new interventions submitted for potential inclusion.

In the time since the website went online in April 2013, a number of modifications have been made to the included programmes. For example, in two cases the names of the interventions were modified, one intervention which was categorised in the original document as the Hanen Early Language Parent programme has been subdivided into a series of different programmes produced by the same organisation, some of which have supporting evidence and others which do not. Four additional interventions deemed to have the necessary level of evidence have been added. The group has also had to be clear that the What Works database is intended for programmes that collect outcome data on individual

children. Programmes that train practitioners but do not measure child outcomes are to be categorised separately. Finally, as a part of this moderation process, we have begun to enhance the data set by excluding a handful of well established interventions that have face validity from the practitioner perspective but little published evidence. In short, the website is a resource but it is also a process that is refined over time. In bringing together the best external evidence with the evidence supporting practice, a functional, living resource has been created that is likely to enhance practice from the bottom up, working with practitioners, rather than working top-down via clinical guidelines. Of course, with a commitment to evidence-based practice it is important that the introduction of such a website is evaluated. We have already reported feedback on the web resource and the implications it has had on practice,[23] and support is currently being sought for further, more formal, evaluation going back to the website users to ask them how their practice has changed as a direct result of its use.

DISCUSSION

The database is, as far as we are aware, the first of its kind in the field to integrate external evidence and practitioner and parental experience. The process by which it was derived is key to its role in increasing the evidence base underpinning practice. Simply telling practitioners to stop doing what they are doing and adopt a new approach is unlikely to be successful if those practitioners are not engaged in the process of engaging with the evidence. That the database is not a static phenomenon is also key to its potential success. Our synthesis had, as its starting point, a Cochrane Review and such reviews are intended to be 'living' documents regularly updated to reflect the latest evidence. The regular changes to the What Works database and the proposals for further development illustrate how interactive this process can become.

It is clear that there remains a great deal that practitioners are doing which has relatively little underpinning evidence or, at best, is indicative in terms of evidence level. More worrying is that some of the best researched interventions have not reached practice in the UK. Clearly there is more that can be done to raise awareness of better researched interventions, and the database will serve this purpose in the future. There also remains a question about the ongoing use of interventions, especially the more ad hoc interventions developed locally, that have little supporting evidence or information about what service users should expect. Our study of outcomes suggests an interesting tension between the primarily impairment-focused intervention outcomes adopted by practitioners and the wider 'quality of life' type of priorities articulated by parents, with specific speech, language, and indeed literacy outcomes seen as a means to an end rather than an end in itself.[18]

Changing professional practice

The variation in uptake of intervention programmes suggests that the context of the service is influential. The technical application of evidence is rarely sufficient to ensure implementation. Rather it must mesh with professional expertise to fit with individual children and families. The number of programmes that practitioners are using irrespective of the nature or indeed lack of evidence, suggests that they are making such adaptive judgements. Whether practitioners can take commercially available programmes 'off the shelf' depends on the fit with the local context and the patient group. So, where training for a published intervention is too expensive, practitioners develop similar products locally. This, in turn, raises questions about treatment adherence and whether it is possible to expect treatment fidelity in complex interventions. Furthermore, it is suggested that experts develop their own 'theories of practice',[24] which draw on knowledge both from external systematic research and 'internal' sources[25] such as personal and clinical experience and knowledge about patient preferences. It is argued that these models or theories of practice are developed to be maximally useful to the practitioner.[26] It follows, therefore, that new evidence will be more accessible to practitioners and potentially more influential on practice when it takes into account existing models of practice. Building a database of research that is responsive to current practice, has the potential to build a bridge between the two. In this model the systematic review may be a necessary precursor to changing practice but it is never likely to be a sufficient condition to realising that change. Active professional engagement is a prerequisite to achieving this type of sustainable change.

Study limitations

Because this is the first such attempt to draw together different evidence sources, inevitably there are potential limitations of omission and commission. The former is likely to be compounded across time as new evaluated interventions become available, the latter less so. Nevertheless there is always a question of whether the right number of interventions are included and whether they are categorised effectively. We aim to obviate this problem through our moderation process, but are well aware that it is not easy to be definitive.

CONCLUSIONS

This study represents one of the first systematic attempts to integrate evidence drawn from external research and practitioner experience and to make that evidence readily available to practitioners. The result is a sustainable database, which has already attracted considerable attention. It remains a 'work in progress' and its application will need to be evaluated. Ultimately the real test will be whether it leads to a greater convergence onto the best available evidence-based interventions and better outcomes for the children themselves.

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SUPPORTING INFORMATION

The following additional material may be found online.

Appendix S1: Online questionnaire.

REFERENCES

1. Greenhalgh T. How to read a paper. London: BMJ Publications, 1997.

2. Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ* 1996; **312:** 71.

3. Dollaghan CE. The handbook for evidence based practice in communication disorders. Baltimore: Paul Brookes, 2007.

4. Novak I, Mcintyre S, Morgan C, et al. systematic review of interventions for children with cerebral palsy: state of the evidence. *Dev Med Child Neurol* 2013; **55:** 885–910.

5. Autti-Ramo I, Eliasson AC, Forssberg H. How to bridge the gap between systematic reviews and clinical guidelines. *Dev Med Child Neurol* 2014; **56:** 390-406.

6. Centre for Community Child Health Evidence-based practice and practice-based evidence: What does it all mean? Australia: The Royal Children's Hospital Melbourne, 2011. www.rch.org.au/ccch/policybriefs.cfm.

7. Marshall J, Goldbart J, Pickstone C, Roulstone S. Application of systematic reviews in speech-and-language therapy. *Int J Lang Commun Disord* 2011; **46:** 261–272.

8. Elwyn G, Frosch D, Thomson R, et al. Shared Decision making: a model for clinical practice. *J Gen Int Med* 2012; **27:** 1361-1367.

9. Law J, Garrett Z, Nye C. Speech and language therapy interventions for children with primary speech and language delay or disorder. *Cochrane Database Syst Rev* 2003; **3:** CD004110. Review.

10. Cirrin FM, Gillam RB. Language intervention practices for school-age children with spoken language disorders: a systematic review. *Lang Speech Hear Serv Sch* 2008; **39:** S110-S137.

11. Boyle J, McCartney E, O'Hare A, Law J. Intervention for receptive language disorder *Dev Med Child Neurol* 2010; **52:** 994–999.

12. Schooling T, Venediktov R, Leech H. Evidence-based systematic review: effects of service delivery on the speech and language skills of children from birth to 5 years of age. Rockville, Mass: ASHA, 2010.

13. McCurtin A, Roddam H. Evidence-based practice: SLTs under siege or opportunity for growth? The use and nature of research evidence in the profession. *Int J Lang Commun Disord* 2012; **47:** 11-26.

14. Craig P, Dieppe P, Macintyre S, et al. Developing and evaluating complex interventions: new guidance. London Medical Research Council, 2008.

15. Roulstone, S. Evidence, expertise, and patient preference in speech-language pathology. *Int J Speech Lang Pathol* 2011; **13:** 43–48.

16. Bercow J. The Bercow Report: A review of services for children and young people (0-19) with speech, language and communication needs. Nottingham: DCSF, 2008. https://www.education.gov.uk/publications/eOrderingDownload/Bercow-Report.pdf

17. Dockrell J, Lindsay G, Law J, Roulstone S. Supporting children with speech language and communication needs: an overview of the results of the Better Communication Research Programme. *Int J Lang Commun Disord* 2014; **49:** 543-557.

18. Roulstone S, Coad J, Ayer A, Hambly H, Lindsay G. The preferred outcomes of children with speech, language and communication needs and their parents. Department for Education Research Report 2012, DFE-RR247-BCRP12.

https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR247-BCRP12.

19. Roulstone S, Wren Y, Bakapoulou I, Lindsay G. Interventions for children with speech, language and communication needs: an exploration of current practice. *Child Lang Teaching Ther* 2013; **28:** 325-341.

20. Roulstone S, Wren Y, Bakopoulou I, Goodlad S, Lindsay G. Exploring interventions for children and young people with speech, language and communication needs: A study of practice. Department for Education Research Programme 2012, DFE-RR247-BCRP13. https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR247-BCRP13.

21. Law J, Lee W, Roulstone S, et al. 'What works': Interventions for children and young people with speech, language and communication needs, Department for Education Research Report DFERR-247-BCRP10, 2012. https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR247-BCRP10.

22. Sloper P, Beresford B, Rabiee, P. Every Child Matters outcomes: What do they mean for disabled children and young people? *Children Society* 2009; 23: 265-278.

23. Law J, Lee W, Crichton, S. What works and who cares? Presentation at the RCSLT National Conference. 17-18 September 2014; Leeds.

24. Argyris C, Schon DA. Theory in practice: Increasing professional effectiveness. San Francisco: Jossey-Bass Ltd, 1974.

25. Ryecroft-Malone J, Seers K, et al. What counts as evidence in evidence based practice? J Adv Nurs 2004; **47:** 81–90.

26. Boschuizen HPA, Schmidt HG. The development of clinical reasoning expertise. In Higgs J, Jones M, editors. Clinical reasoning in the health professions. Oxford: Butterworth Heinemann, 2000: 15–22.

Figure 1. Diagram outlining provenance of studies including in the "What works for Speech Language and Communication Needs" integrated review